



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

AN

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/766,094 | 01/27/2004 | Andrew G. Tucker | 15437-0586 | 3195 |
| 29989 | 7590 | 05/14/2007 | EXAMINER | |
| HICKMAN PALERMO TRUONG & BECKER, LLP | | | CAO, DIEM K | |
| 2055 GATEWAY PLACE | | | ART UNIT | PAPER NUMBER |
| SUITE 550 | | | 2194 | |
| SAN JOSE, CA 95110 | | | | |

| | |
|------------|---------------|
| MAIL DATE | DELIVERY MODE |
| 05/14/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|-----------------|-------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/766,094 | TUCKER, ANDREW G. |
| | Examiner | Art Unit |
| | Diem K. Cao | 2194 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 27 January 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-27 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date See Continuation Sheet.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date
4/5/04,5/21/04,11/29/04,9/6/05,9/29/05,4/27/06,9/22/06,3/5/07.

DETAILED ACTION

1. Claims 1-27 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to a signal directly or indirectly by claiming a medium and the Specification recites evidence where the computer readable medium is define as a “*wave*” (such as a carrier wave) (see specification, page 35, paragraph 86). In that event, the claims are directed to a form of energy which at present the office feels does not fall into a category of invention.

See MPEP 2106.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "the second communications object" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-2, 5-7, 12-14, 17-19, 24-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (U.S. 2003/0014466 A1) in view of Stevens (Advanced Programming in the UNIX Environment).**

As to claim 1, Berger teaches a method comprising: in a global operating system environment controlled by a single operating system kernel instance (a trusted Linux host OS, a base Linux kernel 400; page 5, paragraph 46), establishing a non-global zone for isolating processes from processes in other non-global zones (WEB compartment 401, FTP compartment 402, and SYSTEM compartment 403; page 5, paragraph 46 and each process within the system ... from another compartment; page 4, paragraph 41), wherein the non-global zone has a unique zone identifier (user-friendly names ... respective number that is used for internal processing by system 400; page 5, paragraph 48), processes from one non-global zone cannot interfere with processes from another non-global zones (page 2, paragraph 18, page 3, paragraph 35 and page

4, paragraph 41), the processes of the non-global zones are limited to accessing system resources according to rules stored in rule database (page 5, paragraph 47), processes in non-global zones make IPC requests to access resources or communicate to other processes (page 7, paragraph 82 - page 8, paragraph 95), each process has a label attached indication which non-global zone that the process belong to (page 9, paragraph 118), and tagging individual kernel resources (page 6, paragraphs 58-59).

Although Berger do not explicitly teach receiving from a first process executing in association with the non-global zone a first request to create a communications object, in response to receiving the first request, creating a communications object, wherein the communications object has the unique zone identifier of the first process associated therewith, receiving from a second process a second request to initiate communications using the communications object, in response to receiving the second request, determining if the second process is associated with the non-global zone having the unique zone identifier of the communications object, and denying the second request if the second process is not associated with the non-global zone having the unique zone identifier of the communications object, Berger already teaches processes executing in one non-global zones cannot access other processes or resources of another non-global zone (page 2, paragraph 18, page 3, paragraph 35 and page 4, paragraph 41), and requests to communicate to other processes or access resources of another non-global zone is denied (page 6, paragraph 50). Stevens teaches a first process request to creates a communications object (calls pipe; page 429), the kernel creates a pipe in response to the request (see Fig. 14.3).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to apply the teaching of Stevens to the system of Berger for the full understanding of how process in each non-global can make system calls/request utilizing IPC means (see Berger, page 5, paragraph 46 and page 7, paragraphs 83-90)

As to claim 2, Berger as modified teaches permitting the second request if the second process is associated with the non-global zone having the same unique zone identifier of the communications object (grant communication access; page 6, paragraph 50).

As to claim 5, Berger teaches wherein establishing a non-global zone for isolating processes from processes in other non-global zones further comprises:

- creating a non-global zone (implements compartments to provide containment; page 5, paragraph 46),
- associating a unique identifier with the non-global zone (user-friendly name, a respective number; page 5, paragraph 48), and
- creating a data structure for managing information about communications objects associated with the non-global zone (Each tagged data type ... kernel resources; page 5, paragraphs 58-59).

As to claim 6, Berger teaches receiving from a second process a request to initiate communications using the communications object comprises receiving a request from a requestor process in a first non-global zone to communicate with a recipient process in a second non-global zone (process may include code ...resource; pages 5-6, paragraph 50 and what an end-

user ... several compartments; page 6, paragraph 63), the method further comprising:

- retrieving credentials for the requestor process, the credentials comprising a zone identifier indicating a non-global zone to which the requestor process is bound (at appropriate points in the kernel, access-control checks are performed, consults a table of rules indicating which compartments are allowed to access the resources of another compartment; page 7, paragraph 82),

- verifying that the requestor process is authorized to communicate with the recipient process across a non-global zone boundary based upon the credentials (access control logic ... is permitted to access to the particular resource; page 6, paragraph 50), and

- establishing a communication path between the requestor process and the recipient process via the global operating system environment if the requestor process is authorized (depending on the rules ... access control logic may grant communication access to process 503; page 5, paragraph 50, and flexible communication paths between compartments ... most IPC mechanism; page 4, paragraph 43).

As to claim 7, Stevens teaches wherein the communications object comprises at least one of a loopback transport provider, a semaphore, a shared memory segment, a message queue and an event channel (see fig. 14-1, page 427).

As to claim 12, see rejections of claims 1-2 above.

As to claim 13, it is the same as the method claim of claim 1 except it is a computer

product claim, and is rejected under the same ground of rejection.

As to claims 14 and 17-19, see rejections of claims 2 and 5-7 above.

As to claim 24, it is the same as the method claim of claim 12 except it is a computer product claim, and is rejected under the same ground of rejection.

As to claim 25, it is the same as the method claim of claim 1 except it is an apparatus claim, and is rejected under the same ground of rejection.

As to claim 27, it is the same as the method claim of claim 12 except it is an apparatus claim, and is rejected under the same ground of rejection.

7. Claims 3-4 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (U.S. 2003/0014466 A1) in view of Stevens (Advanced Programming in the UNIX Environment) further in view of Kamp et al. (Jails: Confining the omnipotent root).

As to claim 3, Berger as modified teaches wherein the communications object has an object identifier, and wherein creating a communications object further comprises:

- creating a communications object having a communications object identifier (see Stevens: A pipe is created by calling the pipe function, int pipe (int fields[2]); page 428, section

14.2),

- associating a zone identifier of the requesting process with the communications object (see Berger: introduce a tag on various data types, compartment number, tagging individual kernel resources; page 6, paragraphs 58-59),

- storing the communications object identifier and the zone identifier in a structure for managing communications objects in the non-global zone comprising the first process (see Berger: struct scecinfo data-member ... data structure; page 6, paragraph 58),

Berger and Stevens do not teach enabling a first communications object in a first non-global zone and a second communications object in a second non-global zone to use identical communications object identifiers. However, Kamp teaches collision of identifiers is occurred in the Jails environment (pages 8-9, section 7.3 'Jail Management'). Thus, communications objects in different non-global zones can use the same object identifier.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Kamp to the system of Berger and Stevens because Kamp teaches the collision identifiers in the system with multiple non-global zones, and the administrations should understand to avoid confusion and unintended consequences may results (page 9, first paragraph).

As to claim 4, Stevens teaches wherein the communications object identifier comprises at least one of an address, a socket identifier, a port, a flex address, a semaphore identifier, a message queue identifier, a shared memory segment identifier, a pipe and a stream identifier (see Fig. 14.1, page 427).

As to claims 15-16, see rejections of claims 3-4 above.

8. Claims 8-11, 20-23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (U.S. 2003/0014466 A1) in view of Stevens (Advanced Programming in the UNIX Environment) further in view of Kamp et al. (Jails: Confining the omnipotent root) and Presotto et al. (Interprocess Communication in the Ninth Edition Unix System).

As to claim 8, see rejection of claim 1 above. Berger teaches establishing access permissions for the file system locations (page 5, paragraph 49 and page 7, paragraphs 93-90).

Berger and Stevens do not teach mounting a file system to a global file system of the global operating system environment at a point accessible by processes in one non-global zone, establishing a file system location in the file system of the non-global zone, establishing a communications object within the file system location. However, Kamp teaches mounting a file system to a global file system of the global operating system environment at a point accessible by processes in one non-global zone (mounting a process file system for the jail; page 8, paragraphs 7.2 & 7.3), establishing a file system location in the file system of the non-global zone (mounting a process file system for the jail; page 8, paragraphs 7.2 and 7.3). Presotto teaches file system is used for inter-process communication (pages 3-4, section 'File System').

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Kamp and Presotto to the system of Berger and Stevens because Kamp and Presotto provide a method for communication in the jail system utilizing file

system.

As to claim 9, Stevens teaches wherein the first communications object and the second communications object employ at least one of a pipe, a stream, a socket, a POSIX inter-process communications and a doors interface (see fig. 14-1, page 427).

As to claim 10, see rejection of claim 6 above.

As to claim 11, Stevens teaches wherein the first process in the first non-global zone communicates with the second process in the second non-global zone using at least one of an event channel and a doors interface (Fig. 14.1, page 427).

As to claim 20, it is the same as the method claim of claim 8 except it is a computer product claim, and is rejected under the same ground of rejection.

As to claims 21-23, see rejections of claims 9-11 above.

As to claim 26, it is the same as the method claim of claim 8 except it is an apparatus claim, and is rejected under the same ground of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's

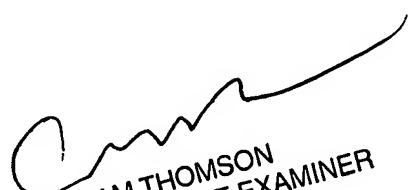
disclosure. See PTO 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K. Cao whose telephone number is (571) 272-3760. The examiner can normally be reached on Monday - Friday, 8:30AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DC
May 9, 2007


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER